that they follow the subject with which the man's name is intimately associated. The chapter on logarithms ends with short notes on Briggs and Napier, that on the theory of equations with one on Gauss, determinants with one on Sylvester. A few pictures of mathematicians are also introduced.

GEO. W. HARTWELL.

Theory of Functions of a Complex Variable. By DR. H. BURKHARDT, Professor in the Technical School, Munich. Authorized English translation, with the addition of figures and exercises, by S. E. RASOR, Professor of Mathematics, Ohio State University. D. C. Heath & Co., Boston, 1913. 421 pages. $4.00.

This book is a close translation of the second part of the first volume of Professor Burkhardt's *Funktionen-Theorie*. Since the latter is no doubt well known to those interested in this field, it will perhaps be sufficient here to give the chapter headings and to indicate briefly the additions made by the translator. Chapters, sections, and theorems are numbered exactly as in the German text.

Chapter I. *Complex numbers and their geometrical representation.* The translator has added at the end of the chapter 32 exercises designed to give practice in the use of the complex number.

Chapter II. *Rational functions and conformal representations determined by them.* Nine lists of exercises, containing 78 individual problems, have been added. Also, following § 21 there has been added § 21*a*, 7 pages, devoted to the function $w = \frac{1}{2}(z + z^{-1})$; and following § 22 there has been added § 22*a*, 6 pages, treating the function $w = z^3 - 3z$.

Chapter III. *Theory of real variables and their functions.* Four lists containing 31 exercises have been added.

Chapter IV. *Single-valued analytic functions.* A brief section, § 30*a*, on limits of convergent sequences of complex numbers, and ten lists containing 119 exercises have been added by the translator.

Chapter V. *Many-valued analytic functions.* The translator has added § 57*a* on the function $\tan^{-1} z$, § 60*a* on rational functions of z and $\sqrt{z}$, § 62*a* on rational functions of z and $\sqrt{(z-a)(z-b)}$, § 62*b* on integrals of rational functions of z, etc., § 62*c* on the function $z = w + i\sqrt{1 - w^2}$, § 62*d* on the function $\sin^{-1} w$, 27 pages in all, and six lists containing 67 exercises.

Chapter VI. *General theory of functions.* Three lists containing 48 exercises have been added.

This is without doubt a most timely book, for the need of a text in English of about this scope has long been felt. It is to be regretted that some discussion of the logarithmic potential and of streamings in general was not added for the benefit of students of physics who study the theory of functions for its applications. However, with nearly four hundred exercises added to round out in many important particulars the excellent work of Burkhardt, we now have available in English a most satisfactory text-book on the theory of functions of a complex variable.

W. C. BRENKE.